

(12) UK Patent Application (19) GB (11) 2 328 957 (13) A

(43) Date of A Publication 10.03.1999

(21) Application No 9722745.8

(22) Date of Filing 29.10.1997

(30) Priority Data

(31) MI97A2039 (32) 08.09.1997 (33) IT

(71) Applicant(s)

Para' S.p.A
(Incorporated in Italy)
Via Ferruccio Radaelli 56,
24040 Pontirolo Nuovo(Bergamo), Italy

(72) Inventor(s)

Giuliano Parravicini

(74) Agent and/or Address for Service

Serjeants
25 The Crescent, King Street, LEICESTER, LE1 6RX,
United Kingdom

(51) INT CL⁶

D06C 11/00, D03D 13/00

(52) UK CL (Edition Q)

D1S S14

D1K K20D

(56) Documents Cited

GB 1479308 A

GB 1445142 A

GB 1436837 A

GB 1171990 A

(58) Field of Search

UK CL (Edition O) D1S

INT CL⁶ D06C

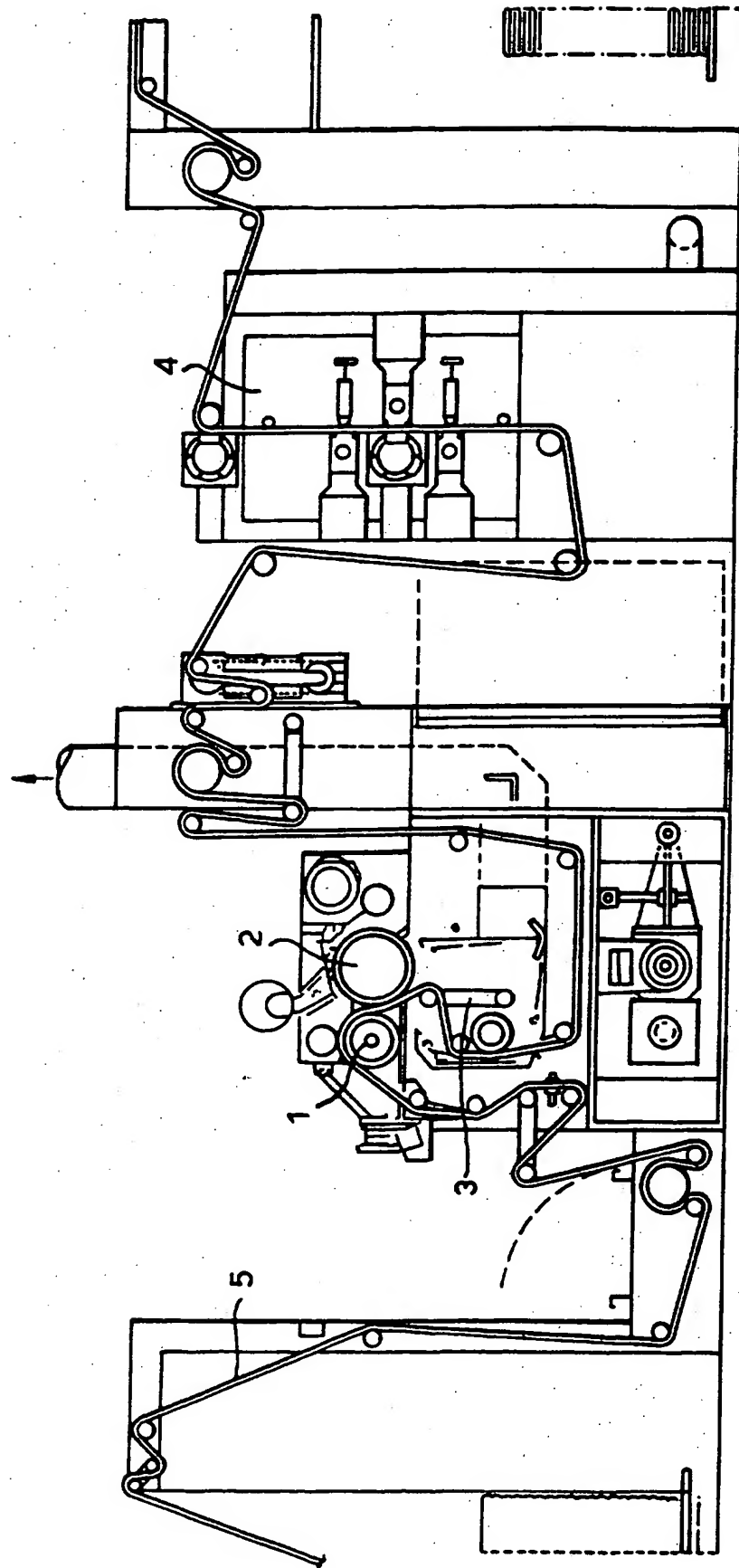
Online:WPI

(54) Abstract Title

Furnishing fabrics

(57) A method is disclosed for treating a fabric with a square structure, of a Panama type, consisting of at least 80% cotton and any remaining part consisting of one or more natural fibres, in which the warp comprises between 26 and 30 thread/cm and the weft between 11 and 13 shed/cm. In the method, at least one side of the fabric is brushed with an abrasive in a polishing machine. Fabric obtained in this way has a particular velvety appearance, a final weight of between 260 and 330 g/m² and a tear strength of greater than 55 kg (warp) and 30 kg (weft).

GB 2 328 957 A



TITLE

Furnishing Fabrics

DESCRIPTION

The invention relates to furnishing fabrics of pleasing appearance and high wear resistance and to a method for obtaining such furnishing fabrics.

Furnishing fabrics, for example those used for sofas, armchairs, chairs, beds and furniture in general, must be resistant to wear, for example by abrasion or tearing, and must have a pleasing aesthetic appearance. There are various techniques for the production of furnishing fabrics which have these qualities. These techniques include Jacquard, dobby and velvet work. All of these techniques are expensive. There are however no techniques which can provide a fabric with a high aesthetic quality and high resistance to wear but at a medium to low cost.

The invention provides method for the treatment of a furnishing fabric having a square structure, of a Panama type, consisting of at least 80% cotton and any remaining part consisting of one or more natural fibres, in which the warp comprises between 26 and 30 threads/cm and the weft between 11 and 13 sheds/cm, the method comprising brushing at least one side of the fabric with an abrasive in a polishing machine.

Fabric obtained in this way is of high aesthetic quality, exhibiting a particular velvety appearance. It has a final weight of between 260 and 330 g/m². It has a high resistance to wear, with tear strength of greater than 55 kg (warp) and 30 kg (weft). It is obtained at a contained cost.

Typically, the abrasive is a glass paper with a grain of between 200 and 300, preferably between 230 and 250.

An example of a polishing machine which is suitable for carrying out the treatment of this invention is the SM1 machine of Sperotto di Malo (VI) - Via Galilei 13, Italy.

The fabric treatment of the invention is suitably carried out by passing the fabric through the polishing machine at a speed of from 1 to 10 m/min, preferably from 4 to 8 m/min, and even more preferably from 5 to 7 m/min.

It has also surprisingly been found that the aesthetic quality of the fabric treated according to the invention is particularly accentuated when the fabric has been previously treated with non-ionic softeners. A suitable non-ionic softener is AlfalinaTM N.T. from G. Bossetto of Bergamo, Italy.

In the case of dyed fabric, it has also unexpectedly been found that the aesthetic quality of the fabric treated according to the invention is particularly accentuated when the dye used is of an indanthrenic and/or reactive type. In this description and the claims, the term "indanthrenic" shall mean the group of dyes derived from anthraquinone, the best known of which is indanthrone. The term "reactive" shall mean the group of dyes made up of directly or indirectly united chromophor systems with particular functions which can stabilise covalent bonds with fixed reactive groups of fibres through an etherification reaction.

A typical example of a reactive anthracite dye has the following composition: golden yellow levafix DystarTM E - G 150% macr. (0.506 kg), bright red levafix DystarTM E 4 BA 01 (0.473 kg), blue levafix DystarTM MT. 861201 (1.370 kg), erkantosTM AS (0.300 kg), caustic soda 36 BE' (1.200 kg), anhydrous sodium sulphate (18.000 kg), solprintTM RD (0.300 kg) and sodium carbonate SolvayTM (1.800 kg).

In the case of indanthrenic dyes, the fabric is preferably dyed using the Foulard method, the Jigger method and/or a combination of these.

The Foulard method uses a machine comprising a hot bath (24 - 25°C) of the dye solution, over which rotate two or more cylinders drawing the fabric to be treated. Depending on the position

and speed of rotation of the cylinders, the fabric can be immersed directly in the liquid or it can be absorbed simply by that drawn by a partly immersed cylinder.

The Jigger method uses shallow baths with two external cylinders moved by gears which can wind and unwind the taut fabric. On the bottom of the bath two other idle cylinders hold the fabric taut on the bottom. The bath is heated by tubes of steam placed inside.

In the case of reactive dyes, the fabric is dyed preferably in accordance with the Pad Batch procedure in which, after the impregnation which is obtained by applying the said Foulard method, the fabric is stored for 24 hours until the dye is fixed, washed continuously with soap and finally dried.

The invention further provides a furnishing fabric having a square structure, of a Panama type, consisting of at least 80% cotton and any remaining part consisting of one or more natural fibres, in which the warp comprises from 26 to 30 threads/cm and the weft from 11 to 13 sheds/cm, the fabric having a particular velvety appearance, a final weight of between 260 and 330 g/m² and a tear strength of more than 55 kg (warp) and 30 kg (weft).

Preferred examples of any other natural fibres associated with cotton in the fabric of the invention are linen, viscose and jute.

Preferably, the fabric of the invention is made of 100% cotton.

Typically, the warp has 28 threads/cm (Ne = 10) and the weft has 12 sheds/cm (Ne = 6), where "Ne" is an English unit of measurement corresponding to 0.59 g/yard of thread.

Preferably, the tear strength is from 55 to 90 kg (warp) and from 30 and 80 kg (weft). Typically, the tear strength is about 60 kg (warp) and about 35 kg (weft).

The method of the invention is illustrated with reference to the accompanying drawing, which is a side view of an SM1 polishing machine from Sperotto.

As shown in the drawing, the polishing machine comprises a rubber coated counter-cylinder 1, a polishing cylinder 2, a penetrating cylinder 3 and a unit 4 for cleaning the fabric at the end of the treatment. The polishing cylinder 2 is covered with glass paper. The fabric 5 passes between cylinders 1 and 2. The distance between the polishing cylinder 2 and the penetrating cylinder 3 is between 350 and 200 μm .

The final velvety appearance of the fabric can be modified as required by adjusting the distance between cylinders 1 and 2 and/or by adjusting cylinder 3 to increase or decrease the surface of the fabric 5 brushed by the glass paper wound on cylinder 2.

Preferably the cleaning device 4 is a depulverisor.

The following Example and Test illustrate the invention.

Example

A 100% cotton fabric with a resistance to abrasion of 30,000 Martindale revolutions and a breaking strength of 73 kg (warp) and 60 kg (weft) has been bleached with oxygenated water mercerised at 28° Bè and dyed, using the Pad Batch system, with a reactive anthracite dye with the following composition: golden yellow levafix Dystar™ E - G 150% macr. (0.506 kg), bright red levafix Dystar™ E 4 BA 01 (0.473 kg), blue levafix Dystar™ MT 861201 (1.370 kg), erkantos™ AS (0.300 kg), caustic soda 36 BE' (1.200 kg), anhydrous sodium sulphate (18.000 kg), solprint™ RD (0.300 kg) and sodium carbonate Solvay™ (1.800 kg).

The fabric dyed in this way was impregnated with a non-ionic softener (Alfalina™ N.T. from Bozzetto of Bergamo) in aqueous solution (170 g/litre) and subjected to finishing in an industrial fabric drier at a speed of 50 m/min with a chamber temperature of 150°C. The fabric was then polished using an SM1 machine from Sperotto, prepared so that the distance between the penetrating cylinder and the polishing cylinder (covered with glass paper having a 240 grain) was 300 μm . The fabric was then brushed and depulverised.

The fabric thus obtained had the following characteristics:

composition:	100 % cotton
construction:	Panama type
	warp = 28 threads/cm (Ne = 10);
	weft = 12 sheds/cm (Ne = 6)
weight:	290 g/m ²
abrasion resistance:	18,000 Martindale revolutions (standard BS 2543)
breaking resistance:	35 kg warp; 50 kg weft
category:	general domestic
resistance to light:	good
appearance:	velvety with directional and bleached pile

Test for Resistance to Wear

To evaluate the resistance to wear of the fabric the Nu-Martindale type abrasimeter was used.

A circular sample (diameter = 40 mm) of fabric was placed on an expanded polystyrene impact-absorbing disc and rubbed against a standard abrasion felt under a pressure of 12 KPa, $20 \pm 2^\circ\text{C}$ and $65 \pm 2\%$ RH. The resistance to wear was determined by the number of rubs needed to break three or more threads/weft or for the formation of bobbles. The movement traced by the sample bearer on the abrasive is a Lissajous figure. This movement changes from a circular rotation to an elliptical movement and then reciprocating movement and gradually returns to an elliptical movement on the opposite diagonal before the cycle starts again. The continuous movement ensures that the surface of the fibres to be tested is moved in all directions. Four tests were carried out in which the average value was equal to 18,000 revolutions, 1.5 changes of tone and no formation of pilling.

The Table shows the results obtained.

TABLE

Test No.	No. of revolutions	change of tone	formation of pilling
1	16,000	1.5	none
2	22,000	1.5	none
3	16,000	1.5	none
4	18,000	1.5	none

CLAIMS

1. A method for treating a furnishing fabric having a square structure, of a Panama type, consisting of at least 80% cotton and any remaining part consisting of one or more natural fibres, in which the warp comprises between 26 and 30 threads/cm and the weft between 11 and 13 sheds/cm, the method comprising brushing at least one side of the fabric with an abrasive in a polishing machine.
2. A method according to claim 1 in which the abrasive is glass paper having a grain of from 200 to 300.
3. A method according to claim 1 in which the abrasive is glass paper having a grain of from 230 to 250.
4. A method according to any preceding claim in which the polishing machine is an SM1 machine from Sperotto.
5. A method according to any preceding claim in which the fabric is passed through the polishing machine at a speed of from 1 to 10 m/min.
6. A method according to any of claims 1 to 4 in which the fabric is passed through the polishing machine at a speed of from 4 to 8 m/min.
7. A method according to any preceding claim in which the fabric is one which has previously been treated with a non-ionic softener.
8. A method according to any preceding claim in which the fabric is one which has previously been dyed with an indanthrenic (as herein defined) dye and/or a reactive (as herein defined) dye.

9. A furnishing fabric having a square structure, of a Panama type, consisting of at least 80% cotton and any remaining part consisting of one or more natural fibres, in which the warp comprises from 26 to 30 threads/cm and the weft from 11 to 13 sheds/cm, the fabric having a particular velvety appearance, a final weight of between 260 and 330 g/m² and a tear strength of more than 55 kg (warp) and 30 kg (weft).
10. A fabric according to claim 9, the fabric being made of 100% cotton.
11. A fabric according to claim 9 or claim 10, the fabric having a warp of 28 threads/cm (Ne = 10) and a weft of 12 sheds/cm (Ne = 6).
12. A fabric according to any of claims 9 to 11, the fabric having a tear strength of from 55 to 90 kg (warp) and from 30 and 80 kg (weft).
13. A fabric according to any of claims 9 to 12, the fabric having a tear strength of about 60 kg (warp) and about 35 kg (weft).